

USSR

UDC: 619:[616.918.42-061616.993.192]

TSARUYEVA, T.V. and DZHANPOLADOVA, V.P., Dagestan Medical Institute

"Mixed Toxoplasmosis and Brucellosis in Farm Animals"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1970,  
pp 135-136

Translation: The purpose of the work was to determine whether there was a mixed infection in farm animals suffering from brucellosis. A total of 224 sera from sick cattle, sheep, and goats was examined. The animals were sent for slaughter to the Makhachkala and Derbent meat packing plants from different parts of the Dagestan ASSR. Examinations were conducted by the generally accepted method, approved by the USSR Ministry of Health, using the complement fixation (CF) test with toxoplasmin and the fluorescent antibody technique. The results were positive in 23.21% of cases in the CF test. The length of the delay in hemolysis varied: it was sharply positive in 15, positive in 9, and weakly positive in 18 cases. In examining 84 sera by the fluorescent antibody method (Wilder-Coons technique), positive results were obtained in 25 cases in titers ranging from 1:5 to 1:40 titers were sharply positive in 9 and positive in 11 cases. It will be noted that positive results were obtained by the luminescent method with sera reacting negatively in the CF test, an indication of the greater sensitivity of the fluorescent antibody method. Thus, 23.21% of the farm animals suffering from brucellosis

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TSARUYEVA, T.V., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,  
No 3, 1970, pp 135-136

exhibited immunological changes specific to toxoplasmosis, showing that they  
had a mixed toxoplasmosis-brucellosis infection. Spontaneous abortions, still-  
births, and fetal deformities were observed in some of the animals suffering  
from the two diseases.

- END -

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CSO: 1840-D (94 pages)

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DZ HANSUGUROVA, U. I.

PATENTABLE RESULTS OF MEDICAL SCIENTIFIC RESEARCH

UDC: 61:608.3

[Article by U. I. Dzhanugurova, Moscow, Sovetskaya Zdravokhraneniye, Russian, No 1, 1972, submitted 13 June 1972, pp 53-56]

In view of the considerable expansion of the economic and scientific-technological ties between the USSR and many countries of the world it is of exceptional importance to protect the priority of Soviet inventions both in our country and abroad. In medicine, as in any other field, patentability is a mandatory prerequisite for scientific research and designing work.

At the present stage of development of science, with the enormous growth of material expenditures, it is becoming necessary to have a high level of scientific projects. This is closely related to providing a greater economic effectiveness of expenses referable to science. The creation of patentable scientific technical findings on the level of the world wide scientific potential is called upon to play a large part in this matter.

The term patentable implies the concept of novelty and usefulness. Therefore, when adding a new topic to a plan one should take into consideration the possibility of patenting.

In order to avoid duplication and unnecessary expense of material resources on findings already known before including a topic in the plan one should pursue a so-called patent information search in order to investigate foreign patents, universal level of achievements on a given topic, and then in the course of working on the topic to keep a constant check on incoming information.

When an analogous finding is discovered before completing work on a given topic, the investigator himself and scientific administrators should find a solution that would differ substantially from the existing patent; otherwise the topic should be taken off the agenda and the question of purchasing a license should be discussed; thereafter, one should develop the relevant topic to the level reached by the author of an existing patent.

VAS 56278  
21 JUL 73

- 74 -

1/2 009  
TITLE--CYCLLOHEXANONE -U-

UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR--(03)--ARESHIDZE, KH.I., SIKARULIDZE, N.G., DZHAOSHUILI, O.A.

COUNTRY OF INFO--USSR

SOURCE--USSR 215,159

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLOHEXANONE, CHEMICAL PATENT, HYDROGENATION, PHENOL,  
PALLADIUM, CATALYTIC ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1452

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128851

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0128851

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CYCLOHEXANONE IS PREPD. BY  
HYDROGENATING PHENOL IN VAPOR PHASE IN THE PRESENCE OF AN PD FORM X TYPE  
ZEOLITE CATALYST WITH PD CONTENT 0.8PERCENT.

UNCLASSIFIED

Acc. Nr: **AP0044144**

Ref. Code: UR 0244

PRIMARY SOURCE: Voprosy Pitaniya, 1970, Vol 29, Nr 1,  
pp 10-12

THE EFFECT OF QUALITATIVELY DIFFERING ALIMENTARY FATS ON THE  
BLOOD SUGAR FIGURES IN NORMALCY AND IN ACUTE EXPERIMENTAL  
HEPATITIS

L. N. Dzhaparidze (Tbilisi)

Summary

Inclusion of fats in the dogs' food ration raises drastically their blood sugar level. When the animals are fed on rations containing butter the blood sugar content is highest, while prevalence of sunflower oil brings it down to the lowest point. Dogs with acute experimental hepatitis fed on a ration with butter exhibit a sharp drop of the blood sugar as compared to its normal level and to that registered in the blood of other dogs fed on qualitatively different fats.

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19770625

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UDC 547.814'753.07

DZHAPARIDZE, K. G., MAISURADZE, D. P., GACHECHILADZE, G. G., and  
GOMELAURI, E. S., Institute of Cybernetics, Acad. Sc. Georgian SSR, Tbilisi

"Synthesis and Some Physico-Chemical Properties of 6-Nitro-2H-Chromen-2-Spiro-  
2'-N-Alkyl-3',3'-dimethylindolines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 775-777

Abstract: Indoline spirochromenes (spiropyrones) with various alkyl substituents on the nitrogen atom were synthesized. Two grams of 2,3,3-trimethylindoline alkyl iodide was decomposed with 5% aqueous base. The oil formed was extracted with ether, washed with water, ether was evaporated and the residue dissolved in ethanol. To this solution an equimolar quantity of 5-nitrosalicylaldehyde was added and refluxed for 2 hrs. After cooling, the pure product crystallized. Most of the compounds synthesized in this fashion were photochromic in the crystalline state. This phenomenon increased with increased length of the alkyl radical, due to better packing of the molecules in crystalline lattice. The melting point dropped as the chain of alkyl substituents increased in length.

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USSR

UDC 616.932-08-092

DZHAPARIDZE, M. N., MARTENS, L. A., YEGOROVA, V. D., and OGARENKO, N. B.,  
All Union Antiplague Institute "Mikrob" (Director: prof. N. I. Nikolayev),  
Saratov

"The Problem of Pathogenetic Therapy of Intoxication Caused by Endotoxins of  
Cholera and El-Tor Vibriion"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 5,  
Sep/Oct 73, pp 75-78

Abstract: A study of respiration of mitochondria of the liver, heart, kidneys  
and small intestine of laboratory animals in a Warburg apparatus in the pres-  
ence of malate, succinate and -ketoglutarate demonstrated that inhibition  
caused by endotoxin of cholera (strains No 596B Inaba and No 149 Ogava) or El-  
Tor vibriion (strains T-4 Inaba and No 573 Ogava) was eliminated only by an  
elevation of the concentration of malate. At the height of the disease mito-  
chondria of animals affected with endotoxin oxidized malate much less than  
the intact animals. Administration of malate to C57Bl mice infected with  
endotoxins was accompanied by an increase in the intermediates of the Krebs'  
cycle in tissues, producing a therapeutic effect. It has been concluded that  
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DZHAPARIDZE, M. N., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 5, Sep/Oct 73, pp 75-78

malate should be included in the composition of the fluid used for rehydration of the patients suffering from cholera, particularly when the administration was to be oral or through a stomach tube.

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UDC 612.35.014.21:612.26).014.46:576.351.  
315.097.29

DZHAPARIDZE, M. N., MARTENS, L. A., and EGOROVA, V. D., All Union Scientific  
Research Anti-Plague Institute "Mikrob", Saratov

"The Effect of Cholera Vibrio Endotoxins on the Respiration of Hepatic Mitochondria  
in the Presence of Kreb's Cycle Substrates"

Moscow, Byulleten' Eksperimentalnoy i Biologiyi Meditsiny, No 4, 1970, pp 66-69

Abstract: The effect of cholera vibrio endotoxins, isolated by Boivin's technique and filtered on Sephadex G-200, on the respiration of hepatic mitochondria of guinea pigs and white rats was studied in the presence of the Kreb's cycle substrates. The degree of respiration was determined manometrically by Warburg's apparatus and chromatographically by the depletion of substrates. A definite inhibiting effect of the vibrio endotoxins on respiration of mitochondria in the presence of malate, oxalacetate, alpha-ketoglutarate, and pyruvate was observed. The toxins did not influence the oxidation of succinate, citrate or restored NAD (nicotinamide adenine dinucleotide). From their study the authors conclude that cholera vibrio endotoxin causes a drastic inhibition of the NAD-dependent dehydrogenases of the Kreb's cycle.

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THE INFLUENCE OF CHOLERA VIBRION ENDOTOXINS ON THE RESPIRATION OF  
HEPATIC MITOCHONDRIA IN THE PRESENCE OF KREBS'S CYCLE SUBSTRATS -U-  
AUTHOR--DZHAPARIDZE, M.N., MARTENS, L.A., YEGOROVA, V.O.

COUNTRY OF INFO--USSR D

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR  
4, PP 66-69  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHOLERA, BACTERIAL ENDOTOXIN, WHITE RAT, DEHYDROGENASE, GUINEA  
PIG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/1743

STEP NO--UR/0219/70/059/004/0066/0069

CIRC ACCESSION NO--AP0109704

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UNCLASSIFIED

222 020

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0109704

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE IS CONCERNED WITH THE STUDY OF CHOLERA VIBRION ENDOTOXINS, ISOLATED BY MEANS OF BUAWEN'S TECHNIQUE OR FILTRATION ON SEPHADEX G-200, ON THE RESPIRATION OF HEPATIC MITOCHONDRIA OF GUINEA PIGS AND ALBINO RATS IN THE PRESENCE OF KREBS CYCLE SUBSTRATES. THE RESPIRATION INTENSITY WAS ASSESSED MANOMETRICALLY IN WARBURG'S APPARATUS AND CHROMATOGRAPHICALLY BY THE DEPLETION OF SUBSTRATES. THE AUTHORS ESTABLISHED AN INHIBITING EFFECT OF VIBRION ENDOTOXINS ON THE RESPIRATION OF MITOCHONDRIA IN THE PRESENCE OF MALATE, OXALACETATE, ALPHAKETOGLUTARATE AND PYRUVATE. THE TOXINS DID NOT INFLUENCE THE OXIDATION OF SUCCINATE, CITRATE AND RESTORED NAD. A CONCLUSION IS MADE ON INJURY OF NAD DEPENDENT DEHYDROGENASES OF KREBS' CYCLE.

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UNCLASSIFIED

USSR

UDC 669.74'782'891.018.9

ARSENISHVILI, A. YU., DZHAPARIDZE, N. V., DZIDZISHVILI, R. N., KATAMADZE, N. P.,  
TSKITISHVILI, A. A., CHOLOKAVA, M. V., CHKHENDZE, E. A.

"Mastery of Industrial Preparation of the Silicon-Manganese-Calcium Alloy"

V sb. Marganets. Dobycha, obogashch. i pererabotka (Manganese. Extraction, Beneficiation and Refining -- collection of works), No 3 (28), Tbilisi, 1971, pp 47-59 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G261)

Translation: Results of three series of experiments in making Mn alloy with Si and Ca in 2,500 and 11,150 kilovolt ampere electric furnaces are discussed. The initial charge comprised a mixture of slag obtained when making medium carbon FeMn with quartzite, lime, and coke breeze. The necessary conditions for normal conduct of the alloy-making process are the following: exact weighing of the charge components and observation of the schedule for discharge of the alloy from the electric arc furnace. The following extraction in the alloy was obtained: 91% Mn, 73.38% Si, 32.93% Ca, 41.1% Al, 29.9% Mg, and 54.2% P with an alloy composition of 23.01% Mn, 54.13% Si, 9.7% Ca, 1.58% Al, 0.79% Mg, and 0.015% P. The consumption of electric power per ton of alloy was 13,195 kilowatt-hours. There are 6 tables.

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USSR

UDC 621.762.002.5(088.8)

DZHAPARIDZE, P. N., DRAKIN, L. A., and MELIK-NUBAROV, T. T., Institute of Inorganic Chemistry and Electrochemistry, Academy of Sciences Georgian SSR

"Apparatus for Briquetting and Sintering of Preforms"

USSR Authors' Certificate No 275810, Cl. 80a, 25/10, (B 28-b5/02, B 30 b 11/14), filed 3 Feb 69, published 29 Oct 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G480)

Translation: The apparatus contains a feeder, cellular conveyer, pressing mechanism, and a heating apparatus. In order to make possible briquetting and sintering of preforms under pressure without the use of binders and for simplification of design, the apparatus is enclosed in an airtight chamber, which has air-lock arrangements for loading the material and for unloading the preforms, while the press is made in the form of a vibroplate, mounted above the cellular conveyer and connected by a rod to a vibrator located outside the chamber. One illustration.

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USSR

UDC 616.981.49-022.38

DZHAPARIDZE, S. K., Chair of Infectious Diseases, Tbilisi Medical Institute

"Symptoms and Diagnosis of Food Poisonings Caused by Different Salmonella Serotypes"

Moscow, Klinicheskaya Meditsina, No 12, 1971, pp 109-114

Abstract: The form and course of food poisoning caused by different Salmonella serotypes were studied in 280 patients, 238 (85%) of whom had clinical diagnosis confirmed by bacteriological examination. Thirty-one serotypes of groups A, B, C<sub>1</sub>, C<sub>2</sub>, D, E<sub>1</sub>, and E<sub>2</sub> were isolated. The clinical forms of the disease included the gastroenteritic, gastroenterocolitic, typhoid, septicopyemic, and very acute gastroenteritis types, the first two being predominant. Rapid onset, chills, general weakness, headaches, anorexia, pain in joints and muscles, nausea, vomiting, diarrhea, neurologic disturbances, etc. were common to all forms. The course of the disease was found to be unrelated to the type of agent; it was determined mainly by individual reactivity. Food poisoning caused by Salmonella can be correctly diagnosed by analysis of clinical, epidemiological and laboratory data supported by positive results of the culturing of feces on elective nutrient media containing sodium selenite as a growth stimulant.

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USSR

UDC [537.226+537.311.33]:[537+535]

ZAVADOVSKAYA, YE. K., DZHAPAROV, R. D., ASANBAYEVA, D. A.

"Dielectric Losses in Nonequilibrium Alkali-Halide Solid Solutions"

Izv. Tomsk. politekhn. in-ta (News of Tomsk Polytechnical Institute), 1970,  
Vol. 180, pp 149-153 (from RZh Fizika, No 12, Dec 71, Abstract No 12Yell48)

Translation: The effect of the decay of ionic solid solutions of NaCl-KCl and NaBr-KBr on their dielectric losses and electrical conductivity is explained. The absorption spectra are measured in the region of F-center absorption.

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USSR

UDC 615.849.2.015.25.038

VLADIMIROV, V. G., ~~DZHARAK'YAN, T. K.~~, BERLIN, L. B., GOLUBENTSEV, D. A.,  
and SMIRNOV, A. D., Military Medical Academy imeni S. M. Kirov, Leningrad

"Some Criteria for Evaluating the Effectiveness of Radioprotective Agents  
in Man"

Moscow, Meditsinskaya Radiologiya, Vol 16, No 9, Sep 71, pp 54-60

Abstract: Since cystamine hydrochloride effectively protects mice from radiation sickness, the dose given per unit of body surface was extrapolated to the average size of man, and a dose of 3 g was calculated (taken internally) as the probable, optimum protective dose for man. Tolerable doses of cystamine (0.8-1.2 gm) given to patients with pulmonary or pelvic tumors prior to single local treatments with x-rays and gamma-rays reduced the number of chromosome aberrations in myeloid cells and lymphocytes in the peripheral blood by 40%. Evidence indicates that a prophylactic intake of the tolerable dose of cystamine hydrochloride will significantly protect men in cases of accidental exposure to ionizing radiation.

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Polymers and Polymerization

USSR

UDC 541.64:547.35

KORSHAK, V. V., DZHASHI, L. V., ANTIPOVA, B. A., and SOSIN, S. L., Institute of Metal Organic Compounds, Acad. Sc. USSR

"Polymerization of Ferrocenylacetylene"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15, No 3, Mar 73, pp 521-526

Abstract: The study was aimed at the investigation of the conditions favoring linear polymerization of ferrocenylacetylene to yield polymers with a system of conjugated double bonds containing electron donating ferrocenyl substituents. This was achievable in presence of di-tert-butyl peroxide at 160° or with molten metallic sodium at 130°. The soluble polymers formed had molecular weight of 1400 and 2500 respectively. A mechanism has been suggested for the formation of polymeric structures of the ladder type through preliminarily formed dimers. These polymers exhibited strong EPR signals ( $10^{18}$  spin/g,  $\Delta H = 10.8$  e).

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USSR

UDC:539.122.13

NIKOLAYSHVILI, SH. S. and DZHASHIASHVILI, G. N.

"Calculation of the Space-Energy Distribution of Secondary Annihilation  $\gamma$ -Quanta"

Moscow, Atomnaya Energiya, Vol 36, No 1, Jan 74, pp 74-75

Abstract: This work presents a new approach to the calculation of the process of formation of electron-positron pairs as  $\gamma$ -quanta pass through matter. The apparatus of conjugate transfer equations in the form developed by G. I. Marchuk et al is used. The necessary addition to the dose accumulation factor resulting from annihilation radiation is calculated for a flat perpendicular source of multienergetic  $\gamma$ -quanta of unit power in an infinite homogenous medium.

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1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SYNTHESIS OF A LOW ASH SULFONATE ADDITIVE BASED ON EXTRACTS FROM  
THE PHENOLIC REFINING OF OILS, AND ITS PERFORMANCE PROPERTIES -U-  
AUTHOR--(03)-BUGAYCHUK, A.M., DZHASHITOV, E.A., FEDOTOV, A.S.  
COUNTRY OF INFO--USSR D  
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (5), 26-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--CHEMICAL-SYNTHESIS, PETROLEUM PRODUCT, ANTIWEAR ADDITIVE,  
DETERGENT ADDITIVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/1946 STEP NO--UR/0318/70/000/005/0026/0027  
CIRC ACCESSION NO--AP0133790  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133790

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXTS. WERE SULFONATED AT 40-50DEGREES WITH 20-5PERCENT OLEUM (18-20PERCENT SO SUB3). THE UPPER LAYER, CONTG. A MONOSULFO ACID CONC., WAS NEUTRALIZED WITH BA(OH) SUB2 AT 30-40DEGREES TO YIELD 45-50 WT. PERCENT (BASED ON THE EXT.) BA SALTS OF SULFO ACIDS. THE ADDITIVE HAD DETERGENT AND ANTIWEAR PROPERTIES.

FACILITY: PERM. POLITEKH. INST., PERM, USSR.

UNCLASSIFIED

USSR

UDC 532.526

VULIS, L. A., DZHAUGASHTIN, K. YE., ZHIVOV, V. G., YARIN, L. P., Leningrad

"Propagation of a Stream of Viscous Liquid in a Medium with a Density Discontinuity"

Moscow, Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 3, 1972, pp 115-122

Abstract: A study was made of the propagation of laminar and turbulent streams in a medium containing a density discontinuity. The results of an experimental study of the propagation laws of flows of a viscous fluid in such a medium are discussed for variation of the Reynolds numbers in the range of  $25 < R < 20 \cdot 10^3$ . In addition to streams normal to the surface of the discontinuity (vertical), horizontal streams propagated along the interface of the heavy and light liquids (the discontinuity surface) were also investigated. Photographs and results are presented for measuring the dynamic pressure illustrating properties of the investigated streams which are unusual for a homogeneous environment -- suppression of turbulence, the presence of a limiting length of the stream, its anisotropy, and so on. An approximate explanation of the observed effects is presented within the framework of boundary layer theory in addition to the semiempirical theory of turbulence.

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1/2 061 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--LAMINAR JETS OF A CONDUCTING FLUID -U-  
AUTHOR--DZHAUGASHTIN, K.YE.  
COUNTRY OF INFO--USSR  
SOURCE--MAGNITNAIA GIDRODINAMIKA, VOL. 6, JAN.-MAR. 1970, P. 5-18  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--LAMINAR FLOW, PLASMA JET, JET FLOW, INCOMPRESSIBLE FLOW,  
INCOMPRESSIBLE BOUNDARY LAYER, BOUNDARY LAYER EQUATION, MAGNETIC FIELD,  
PLASMA WAVE PROPAGATION, ASYMPTOTIC METHOD  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1846 STEP NO--UR/0382/70/006/000/0005/0018  
CIRC ACCESSION NO--AP0118810  
UNCLASSIFIED

2/2 061

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118810

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF PROBLEMS IN THE THEORY OF PLANE INCOMPRESSIBLE CONDUCTING JETS SITUATED IN A MAGNETIC FIELD, ON THE BASIS OF THE BOUNDARY LAYER EQUATIONS FOR A ZERO ELECTRIC FIELD. SIMILAR SOLUTIONS ARE OBTAINED TO THE DYNAMIC AND THERMAL PROBLEMS FOR AN IMMERSED AND A SEMIBOUNDED JET, AND TO THE PROBLEM OF THE PROPAGATION OF A JET IN A SLIPSTREAM. THE SOLUTIONS ARE OBTAINED BY A COMMON APPROACH BASED ON THE INTRODUCTION OF A UNIVERSAL COORDINATE, WITHIN THE FRAMEWORK OF ASYMPTOTIC BOUNDARY LAYER THEORY.

UNCLASSIFIED





DZHAVADOV, G. G.

Random  
Signals

Random  
Signals

UDC 620.7.059.6.101  
1 Jan 1973

ORTHOGONAL BINARY RANDOM PROCESSES

Part 25-13

G. G. Dzhavadoy, Candidate of Technical Sciences  
Let us assume that a binary random process  $x_1(t)$  is given. Let us assume a non-terminating cycle interval  $T_0$ . A possible realization of the process is shown in Figure 1a. It is required that binary random processes with continuous time, related and orthogonal to each other, be created. Let us form the process

$$x_2(t) = x_1(t)/f(t), \quad (1)$$

where  $f(t)$  is a random with the period  $T_0 = 2T_0$ .

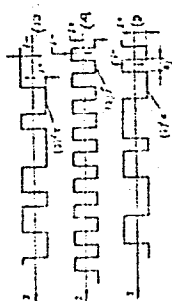


Figure 1. The realization of two processes.

On coincidence of the beginning of the cycle interval  $x_1(t)$  with the beginning of the cycle interval of the random  $f(t)$ , multiplication of them is equivalent to changing the sign of  $x_1(t)$  to the opposite to every other interval for example, only the even (or odd) intervals, respectively, for the value of any  $i$ -th zero of  $x_1(t)$ , two disjoint situations are possible:

Either both processes to the right of zero have the same sign and then to the left of zero their signs are different;

USSR

KVITASHVILI, A. A., DZHAVAKHISHVILI, I. N. and GIORGOBIANI, Z. G.

"The Convergence of the Process of Learning of Recognition When the Method of Stochastic Approximation is Used"

Soobshch. AN GruzSSR [Reports of Acad. Sci., Georgian SSR], 1973, Vol 69, No 3, pp 561-564 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V788)

Translation: The application of the Robbins-Monroe method to a non-parametric procedure of learning recognition of patterns is studied. The dependence of the length of the search for the optimal discriminant function with two methods of learning on the order of presentation of images during the process of learning is experimentally studied. The first -- the method of formalized learning -- assumes that the position of the weight vector changes in each step of iteration. In the second learning method -- the method with error correction, the change in the weight vector occurs only upon false assignment of an image to the wrong class. The results make the advantages of the second method obvious, consisting in a significant reduction of learning time and independence of this time on the sequence of presentation of images.

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1/2 019 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--EXPERIMENTAL STUDY OF THE EFFECT OF CARSDOCROMEN ON THE ISCHEMIC  
MYOCARDIUM -U-  
AUTHOR-(U4)-DZHAVAKHISHVILI, N.A., KOBALADZE, S.G., GIBRAUZE, T.A.,  
TSAGAKELI, Z.G.  
COUNTRY OF INFO--USSR  
SOURCE--ARZNEIM., FERSCH. 1970, 20(3A), 440-1.  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MYOCARDIUM, DOG, ARTERY, CARDIOVASCULAR DRUG, DRUG EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605015/F02 STEP NO--GY/0000/70/020/003/0440/0441  
CIRC ACCESSION NO--AP0140632  
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11DEC70  
CIRC ACCESSION NO--AP0140632  
ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. IN DOGS WITH EXPTL. CARDIAC  
INFARCTION PRODUCED BY LIGATION OF THE ANTERIOR DESCENDING CORONARY  
ARTERY, CARBOXYMEN ENHANCED VASCULARIZATION, MAINTAINED INTACT MUSCLE  
FIBERS, INCREASED RETROGRADE BLOOD FLOW AND LYMPH DRAINAGE, AND RESTORED  
VASCULAR PERMEABILITY IN THE INFARCTED AREA. FACILITY: A. N.  
NATISHVILI INST. EXPTL. MORPHOL., TBILISI, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CHARACTERISTICS AND POTENTIALITIES OF A DISCHARGE CONDENSATION  
CHAMBER -U-  
AUTHOR-(03)-MANDZHAYIDZE, Z.SH., ROYNISHVILI, V.N., DZHAVRISHVILI, A.K.  
COUNTRY OF INFO--USSR  
SOURCE--PRIB. TEK. EKSP. 1970, 1, 46-51  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--PARTICLE DETECTOR, DISCHARGE CHAMBER, GAS IONIZATION, VAPOR  
CONDENSATION, PARTICLE TRAJECTORY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1988/1481 STEP NO--UR/0120/70/001/000/0046/0051  
CIRC ACCESSION NO--AP0106237  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106237

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW DETECTOR OF ELEMENTARY PARTICLES IS DESCRIBED. IT IS A DISCHARGE CONDENSATION CHAMBER BASED ON 2 STAGE DETECTION OF PARTICLES WITH CONSECUTIVE USE OF THE DISCHARGE AND CONDENSATION METHODS OF REGISTRATION. IN THE 1ST STAGE THE IONIZATION E GENERATED BY THE CHARGED PARTICLES IN THE WORKING GAS MIXT. WITH THE CONDENSATE ARE ACCELERATED IN THE PULSED ELEC. FIELD AND BECOME THE INITIATORS OF THE GAS DISCHARGE. THE AMPLITUDE AND PULSE LENGTH ARE SELECTED TO INTERRUPT THE DISCHARGE AT THE STAGE OF TOWNSEND SHOWERS. IN THE 2ND STAGE THE CONDENSATION OF THE SUPERSATD. VAPOR ON IONS ALONG THE TRAJECTORY OF A PARTICLE TAKES PLACE. THE DEGREE OF SUPERSATN. IS PICKED A LOT LOWER THAN THE THRESHOLD NEEDED FOR CONDENSATION ON DISCRETE IONS BUT ADEQUATE FOR CONDENSATION ON DENSE ACCUMULATIONS OF IONS SUCH AS A TRACK AFTER THE GASEOUS AMPLIFICATION IN STAGE 1. THE CHAMBER HAS A HIGH TIME RESOLN., A LONG MEMORY OF DISCRETE PHENOMENA, FULL ISOTROPY, GOOD SPATIAL RESOLN., TRACK BRIGHTENERS, AND POSSIBILITY OF USING MANY GASES, HE AND H INCLUDED.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--OPTICAL PROPERTIES OF THE LEAVES OF PLANTS GROWN FROM IRRADIATED  
SEEDS -U-  
AUTHOR--DZHAVRSHYAN, D.P.  
COUNTRY OF INFO--USSR  
SOURCE--BIOL. ZH. ARM. 1970, 23(1), 80-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LEGUME CROP, AGRICULTURAL CROP SEED, X RAY RADIATION BIOLOGIC  
EFFECT, BIOLOGIC PIGMENT, CHLOROPHYLL, OPTIC PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/0367 STEP NO--UR/0427/70/023/001/0080/0086  
CIRC ACCESSION NO--AP0135860  
UNCLASSIFIED



2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135860

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AIR DRIED BROAD BEAN SEEDS WERE X IRRADIATED WITH THE DOSES OF 0.1, 0.5, 2.0, 4.0, 6.0, 8.0, AND 10.0 KR AT THE DOSE INTENSITY OF 50 R-MIN, AND THEN GERMINATED IN VEGETATION POTS IN A GREENHOUSE, AT THE SOIL HUMIDITY OF 60PERCENT. THE LEAF PIGMENT SEPN. WAS DONE BY AN ASCENDING PAPER CHROMATOC., AND THE IDENTIFICATION AND QUANT. DETH. AFTER THE COMAR AND ZSCHEILE METHOD (1942). THE VALUES OF ABSORPTION, REFLECTION, AND TRANSMISSION SPECTRA WERE REGISTERED BY AUTOSPECTROPHOTOMETER. THE RESULTS OF ANAL. REVEALED THAT THE HIGH DOSES OF X IRRADN. (8-10 KR) NOT ONLY RETARDED THE GERMINATION OF THE SEEDS AND DEVELOPMENT OF THE PLANT, BUT ALSO CONSIDERABLY CHANGED ITS OPTICAL PROPERTIES. IT INCREASED ABSORPTION SPECTRA IN THE RANGE 400-750 MMU, AND DECREASED THEIR TRANSMISSION SPECTRA, WHILE REFLECTION SPECTRA WERE VARIABLE. WITH LOWER DOSES OF X IRRADN., THESE OPTICAL PROPERTIES WERE EFFECTED TO LESSER EXTENT. THE CHLOROPHYLL A AND B, CAROTENE, VIOLAXANTHIN, AND LUTEIN CONTENTS WERE LESS IN THE LEAVES FROM X IRRADIATED SEEDS.

UNCLASSIFIED

USSR

UDC 543.544

TALIPOV, SH. T., DZHAYANBAYEVA, R. KH., KHALIMOVA, U. KH., BELOBORODOVA, N. F.,  
and SHEYNINA, R. I., ~~Tashkent State University~~ imeni V. I. Lenin

"Thin-Layer-Chromatographic Determination of Butyphos in Cottonseed Oil"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 4 (90), 1971, p 20

Abstract: KSK silica gel was used for determination of butyphos in cottonseed oil, it is more selective than alumina. Butyphos was extracted from cottonseed oil with acetonitrile, passed through a 3:1 column of alumina:silica gel and chromatographed in the system n-hexane-acetone (4:1). The spots were developed with 0.05% bromphenol blue; impurities do not show up in this system.

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USSR

UDC 547.241+547.362+547.81+547.823

AZERBAYEV, I. N., DZHAYLAUOV, S. D., BOSYAKOV, Yu. G., YERZHANOV, K. B.,  
and SERIKBAYEV, K. S., Institute of Chemical Sciences, Academy of Sciences  
KazakhSSR

"Reaction of Dipropargylphosphorous Acid With Heterocyclic Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 288-292

Abstract: Reaction of dipropargylphosphorous acid with  $\alpha$ -ketones of the pyran, thiopyran, and piperidine series in presence of sodium alkoxide leads to the formation of respective dipropargyl esters of heterocyclic  $\alpha$ -hydroxyphosphonic acids. It was shown that nucleophilic addition of dipropargyl phosphite to pyranone and thiopyranones, in contrast to piperidones, requires the presence of alkaline catalysts. It is assumed that the aminoketone acts as a catalyst.

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USSR

UDC 547.241

AZERBAYEV, I. N., DZHAYLAUOV, Yu. G., BOSYAKOV, K. B., YERZHANOV, K. B.,  
SERIKBAYEV, K. S., and ALEKSEYEVA, N. N., Institute of Chemical Sciences,  
Acad. Sc., KazSSR, Alma-Ata

"Reactions of Unsaturated Phosphites With Aldehydes and Ketones"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Khimicheskaya No 1,  
Jan-Feb 73, pp 51-57

Abstract: Condensation of dipropargyl phosphite with chloral and bromal yields 0,0-dipropargyl (1-hydroxy-2,2,2-trichloroethyl)phosphonate and its tribromo analog even without any catalyst. In the presence of sodium alkoxide the reaction of diallyl phosphate with 2,5-dimethylpiperidone-4, 2,6-diphenylpiperidone-4, 2,6-di(2-hydroxyphenyl)-piperidone-4, 1,2,5-trimethylpiperidone-4 yields the respective 4-diallylphosphanepiperidoles-4; with 2,2-dimethyltetrahydropyranone-4, 2,2-dimethyltetrahydrothiopyranone-4 and 2,5-dimethyltetrahydrothiopyranone-4 the products are the respective 4-diallylphosphane-tetrahydropyrans-4. The esters of  $\alpha$ -hydroxyphosphinic acids of pyrone, and thiopyrone series are unstable, decomposing on distillation.

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USSR

UDC 576.895.4

MULYARSKAYA, L. V., KOROBEYNIKOV, A. S., DZHEBRALLOV, D. D., BABAYEV, A. G.,  
SHASHNIKOVA, N. V., and MOVSUMOV, M. A.

"Trombiculid Mites (Acariformes, Trombiculidae) of Western Azerbaydzhan"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Biologicheskikh  
Nauk, No 3, 1971, pp 77-82

Abstract: The Institute of Zoology, Academy of Sciences Azerbaydzhan SSR, conducted a study of the distribution of trombiculid mites in Western Azerbaydzhan in 1967-68 jointly with the Azerbaydzhan Anti plague Station. The principal host of these blood-sucking parasites in Western Azerbaydzhan was found to be the red-tailed gerbil (*Meriones erythrourus*) because of the large number of animals of this species. Some significance as hosts of trombiculid mites can also be ascribed to the Asia Minor gerbil (*Meriones tristrami*), house mouse, common and social voles, and the weasel. The number of mites varied with the season and with climatic conditions at various elevations of this mountainous area. The largest number of Trombiculidae species (nine species) infested *Meriones erythrourus*. Weasels were infested exclusively with *Miyatrombicula caucasica*. The bird mite *Neoschoengastia thomasi* was found on forest dormice and the

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MULYARSKAYA, L. V., et al., Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Biologicheskikh Nauk, No 3, 1971, pp 77-82

mite Trombicula callosa, which usually infests lizards, was found to occur on hedgehogs. The most numerous species of trombiculid mites was Micro-trombicula azerbaidjanica, which was followed by Leewenhoekia major.

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1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT OF TOLERANCE DEVELOPMENT TO BACTERIAL POLYSACCHARIDE  
PYROGENAL ON ABILITY OF THIS PREPARATION AND ENDOGENIC SERUM PYROGEN TO  
AUTHOR--(02)--DZHEKSEN BAYEV, O.SH., SAVINA, V.T.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 544-547

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POLYSACCHARIDE, ANTIBODY FORMATION, TYPHOID FEVER VACCINE,  
RABBIT, AGGLUTININ

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1855

STEP NO--UR/0297/70/015/006/0544/0547

CIRC ACCESSION NO--AP0125466

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADAPTATION (NON IMMUNOLOGICAL TOLERANCE) OF RABBITS TO A BACTERIAL LIPOPOLYSACCHARIDE COMPLETELY ELIMINATED ITS CAPACITY FOR INCREASING AGGLUTININ FORMATION IN THE ANIMALS IMMUNIZED WITH HEATED TYPHOID VACCINE. ENDOGENIC SERUM PYROGEN STIMULATED ANTIBODY PRODUCTION IN THE TOLERANT RABBITS TO THE SAME EXTENT AS IN NORMAL ANIMALS. FACILITY: MOSKOVSKIY NAUCHNO ISSLED. INSTITUT VAKTSIN I SYVOROTOK IM. I. I. MECHNIKOVA, MZ SSSR, MOSKVA.

UNCLASSIFIED



1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--MEASUREMENT OF TOTAL AND PARTIAL CROSS SECTIONS OF THE 5.1 GEV-C PI  
PRIME NEGATIVE MESON INTERACTION IN A PROPANE BUBBLE CHAMBER -U-  
AUTHOR--(05)-BUDAGOV, YU.A., VINOGRADOV, V.B., VOLODKO, A.G., DZHELEPOV,  
B.P., MARTINSKA, G.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(2), 395-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--MESON INTERACTION, PION, PROTON, NEUTRON, CARBON, BUBBLE  
CHAMBER, PROPANE, INTEGRAL CROSS SECTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1991/1033 STEP NO--UR/0367/70/011/002/0395/0398  
CIRC ACCESSION NO--AP0110723  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110723

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOTAL CROSS SECTION OF THE 5.1 GEV-C PI PRIME NEGATIVE MESON INTERACTION WAS MEASURED IN A C SUB3 H SUB8 BUBBLE CHAMBER. YIELDS OF REACTIONS WITH DIFFERENT MULTIPLICITIES OF CHARGED PARTICLES WERE DETD. FOR THE INTERACTION OF PI PRIME NEGATIVE MESONS WITH P, N, AND C ATOMS, AND THE CROSS SECTIONS FOR GENERATIONS OF 0-10. PRONG EVENTS IN COLLISIONS WITH P WERE OBTAINED. FACILITY: OB'EDIN, INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

. USSR

UDC: 539.142

DZHELEPOV, B. S., DRANITSYNA, G. F.

"Concerning the Difference Between Moments of Inertia of Interacting Rotational Bands"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1575-1580

Abstract: Coriolis interaction of two rotational bands with spin projections  $K$  and  $K \pm 1$  leads to repulsion of levels with identical spin  $I$ . The repulsion increases with greater spins, resulting in a shift of the bands relative to one another, the lower band being compressed while the upper is expanded. The experimentally determined inertial parameters of the interacting bands differ from the corresponding parameters of the non-interacting (initial) bands. The authors examine the dependence of the observed inertial parameters on the parameters of the initial bands, the relative position of the lower levels of the bands, and the force of the Coriolis interaction between the bands. Formulas are derived for interaction of bands with  $K_1 = \frac{1}{2}$  and  $K_2 = \frac{3}{2}$ . A study is made of the correlation between the difference of the inertial parameters for bands with  $\frac{1}{2}$ -[510]

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USSR

DZHELEPOV, B. S., DRANITSYNA, G. F., Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1575-1580

and  $\frac{3}{2}$ -[512] and the difference of energies of states with  $I = \frac{3}{2}$  of these bands in different nuclei. It is found that the main contribution to the difference in inertial parameters is from interaction between these two bands, and that interaction of these two bands with others has a considerably weaker effect.

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USSR

UDC 539.163

DZHELEPOV, B. S., and SHESTOPALOVA, S. A.

Izobarnyye Yadra s Massovym Chislom  $A=170$  (Isobaric Nuclei with Mass Number  $A=170$ ), Leningrad, "Nauka," (Science) Leningrad Division, 1972, 332 pp, Annotation p 2, Table of Contents pp 327-332.

Translation of Annotation: This monograph is devoted to the properties of the isotopes  $^{170}\text{Ho}$ ,  $^{170}\text{Er}$ ,  $^{170}\text{Tm}$ ,  $^{170}\text{Yb}$ ,  $^{170}\text{Lu}$ ,  $^{170}\text{Hf}$ ,  $^{170}\text{Ta}$ ,  $^{170}\text{W}$ , and  $^{170}\text{Cs}$ . All the experimental data characterizing the properties of stable and radioactive isotopes are compared: data on nuclear masses, magnetic and electric moments, lifetimes of nuclear states, spectra of gamma rays and conversion electrons,  $\gamma$ - $\gamma$  and  $\gamma$ -e coincidences, and nuclear reactions resulting in excited states of the above-enumerated nuclei.

On the basis of critical analysis of the entire aggregate of data the decay schemes of the radioactive nuclei of  $^{170}\text{Ho}$ ,  $^{170}\text{Tm}$ ,  $^{170}\text{Lu}$ , and  $^{170}\text{Hf}$  are derived, as well as sequences of excited states in  $^{170}\text{Er}$ ,  $^{170}\text{Tm}$ ,  $^{170}\text{Yb}$ , and  $^{170}\text{Lu}$ . Substantiations are given for the selection of quantum characteristics for each nuclear state. After the experimental facts are sampled, they are compared with modern theories and nuclear models -- the models of Bohr and Mottelson, Davydov et al., and Solov'yev et al. Anomalies of various kinds are revealed which must be studied for a better understanding of nuclear structure.

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DZHELEPOV, B. S., and SHESTOPALOVA, S. A., Izobarnyye Yadra s Massovym Chislom A=170, Leningrad, "Nauka," Leningrad Division, 1972, 332 pp

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Chislom A=170, Leningrad, "Nauka" Leningrad Division, 1972, 332 pp

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Chislom A=170, Leningrad, "Nauka" Leningrad Division, 1972, 332 pp

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Chislom A=170, Leningrad, "Nauka" Leningrad Division, 1972, 332 pp

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DZHELEPOV, B. S., and SHESTOPALOVA, S. A., Izobarnyye Yadra s Massovym

Chislom A=170, Leningrad, "Nauka" Leningrad Division, 1972, 332 pp

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USSR

UDC: 539.163.546.668

DZHELEPOV, B. S., SHESTOPALOVA, S. A., All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleyev

"Properties of Excited  $0^+$  States of  $^{170}\text{Yb}$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 1, Jan 73, pp 2-18

Abstract: The authors discuss the properties of four excited states of  $^{170}\text{Yb}$  type  $0^+$  obtained by decay of  $^{170}\text{Lu}$  with energies of 1069.36, 1228.91, 1479.91, and 1566.38 keV. The conclusions drawn from the research are as follows: The levels 1228.91 keV,  $0^+$  and 1306.23 keV,  $2^+$  should be considered levels of the  $\beta$ -band of  $^{170}\text{Yb}$ . The levels 1479.91 keV,  $0^+$  and 1534.52 keV,  $2^+$  form a rotational pair of the two-frequency state  $0^+n^{5/2}-[512]-n^{5/2}-[523]$ . The level 1069.36 keV,  $0^+$  has a rare singularity: its rotational level  $2^+0$  is one of the terms of the doublet 1138.56 keV,  $2^+$  and 1145.65 keV,  $2^+$ , but it is not known just which term it is. The properties of the terms of the doublet are very close; only weak arguments favor a function with  $K=0$  for describing the level 1138.56 keV,  $2^+$ . The levels 1566.38 keV,  $0^+$  and 1634.80 keV,  $2^+$  are apparently rotational companions of the two-frequency state  $0^+$ ,  $n^{1/2}-[510]-n^{1/2}-[521]$ .

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USSR

UDC: 539.184

VYLOV, Ts.; DZHELEPOV, B. S.; IVANOV, R. B.; MIKHAYLOVA, M. A.; SERGEYEV, V. O.

"Relative Intensities of X-Rays of the K-Series of Elements With  $Z=79-88$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 26, No 10, Oct 72, pp 2136-2138

Abstract: The authors measure the relative intensities of x-ray lines of  $^{79}\text{Au}$ ,  $^{80}\text{Hg}$ ,  $^{81}\text{Tl}$ ,  $^{82}\text{Pb}$ ,  $^{84}\text{Po}$ ,  $^{85}\text{At}$ ,  $^{86}\text{Rn}$ ,  $^{87}\text{Fr}$ , and  $^{88}\text{Ra}$ . The measurements were made on a gamma-spectrometer with a plane-parallel Ge(Li)-detector. The diameter of the detector was 10 mm, and the thickness of the sensitive region was 6 mm. The input window was made from beryllium with 250-um thickness. The resolution in the investigated energy region (80 keV) was about 850 keV. The mean weighted values of the ratios  $K\alpha_2/K\alpha_1$ ,  $K\beta_1'/K\alpha_1$ , and  $K\beta_2'/K\alpha_1$  are tabulated. The authors thank L. G. Tsaritsyna and A. V. Mozzhukhin for preparing the sources.

1/1

USSR

UDC: 539.163

DZHELEPOV, B. S.

"Radiation Constants of  $^{170}\text{Tm}$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya,  
Vol 36, No 1, Jan 72, pp 99-110

Abstract: The constants for the two lower bands of  $^{170}\text{Tm}$  are determined on the basis of measurements of the magnetic and electric moments,  $B(E2)^+$ , and the spectra of gamma rays and conversion electrons. No contradictions are observed between the experimental and theoretical ratios of gamma-ray intensities. All transitions predicted by theory are actually observed to occur. It was found that strong compensation of components occurs in some transitions and, as a consequence, the relative intensity of the gamma rays and the multipolarity of the transition can be calculated only with a large error. Only the two lower states of the isotope have a half-life of more than 1 ns. The author thanks V. M. Mikhaylov, M. A. Khanonkind, G. F. Dranitsyna, and S. A. Shestopalova for advice and assistance. 1 figure, 2 tables, 17 references.

1/1

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USSR

UDC: 539.143

DZHELEPOV, B. S.

"Concerning a System of Experimental Values of Constants Which Describe the Properties of Deformed Nuclei"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 36, No 1, Jan 72, pp 2-16

Abstract: In studying the excited states of any nucleus, one can ordinarily distinguish three stages: 1. accumulation of experimental material, 2. introduction of levels, construction of schemes of excitation and de-excitation, determination of quantum characteristics, 3. determination of a series of quantities called "physical constants of states" and "constants of transitions". Definition of these constants requires not only experimental data but also assumptions on the structure of the nucleus. This article is a survey of materials covering systems of constants in which the structure of the nucleus is based on physical assumptions which introduce no new previously unknown quantities. An attempt is made to establish a simple hypothesis concerning the properties of rotational quantum states which does not contradict experimental data and which

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USSR

DZHELEPOV, B. S., Izv. AN SSSR: Ser. Fiz., No 1, 1972, pp 2-16

can be used as a basis for setting up a system of nuclear constants. Such a system of constants could be of use to both experimenters and theoreticians. The author thanks M. A. Listengarten and G. F. Dragnitsyna for advice and comments. Three figures, bibliography of thirty-one titles.

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USSR

UDC 539.163

DZHELEPOV, B. S., POPOVA, T. I., PRIKHODTSEVA, V. P., and TSARITSYNA, L. G.  
"  $\gamma$  -Radiation of  $^{65}\text{Ga}$  "

Moscow, Izvestiya Akademii Nauk SSSR -- Seriya Fizicheskaya, Vol XXXV, No 8, 1971, pp 1575-1581

Abstract: Using a Ge(Li)-detector with a sensitive capacity of  $\sim 33$  cubic centimeters, the authors studied the gamma-ray spectrum of  $^{65}\text{Ga}$  ( $T_{1/2} = 15.2$  minutes). They used the accelerator at the Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, with boron ions having an energy of 40 million electron volts. Although the authors selected the reaction  $^{56}\text{Fe}(^{11}\text{B}, 2n)^{65}\text{Ga}$  as their source of  $^{65}\text{Ga}$  because it does not produce very large admixtures of the undesirable  $^{66}\text{Ga}$ , they did not succeed in eliminating  $^{66}\text{Ga}$  completely. In a number of cases this made it more difficult to identify weak lines in the region above 800 kilo electron volts. The authors succeeded in determining the energies and intensities of 24  $\gamma$ -lines; 21 of these lines were associated with the disintegration of  $^{65}\text{Ga}$ . They also computed the intensities of the gamma rays in percents of disintegrations. Finally, they compared their results with those cited in several other articles on the same topic, discussing the similarities and differences in some detail.

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USSR

UDC 539.14+539.143

KOKSHAROVA, S. F., DZHELEPOV, B. S.

"Table of Energies of Gamma-Rays Arising in the Decay of Radioactive Nuclei"


Tablitsa energiy gamma-luchey, voznikayushchikh pri raspade radioaktivnykh yader (cf. English above), Leningrad, "Nauka", 1970, 288 pp, ill., 14.64 k. (from RZh-Fizika, No 3, Mar 71, Abstract No 3V123K)

Translation: The energies of gamma-rays arising in the decay of radioactive nuclei with half-lives greater than 1 sec are presented. The magnitudes of the energies of gamma-transitions are put in ascending order. The nucleus in the discharge of the excited levels in which the gamma-transition occurs is indicated for each gamma-transition. The table is accompanied by a list of isotopes in the decay of which the given gamma-rays are obtained. A list of references is given, including Russian and foreign periodical publications through October 1969 containing experimental data on the energies of gamma-rays which were taken into account in compiling the tables. 500 references.

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USSR

  
BALALAYEV, V. A., DZHELEPOV, B. S., MEDVEDEV, A. I., TER-NERSESYANTS, V. YE.,  
UCHEVATKIN, I. F., and SHESTOPALOVA, S. A., All-Union Scientific Research Institute  
of Metrology imeni D. I. Mendeleyev

"On Lu<sup>169</sup> Decay"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 34, No. 1, Jan 70,  
pp 2-11

Abstract: The conversion electron spectrum of Lu<sup>169</sup> was measured on the  $\pi\sqrt{2}$   $\beta$ -spec-  
trometer of the Institute in the energy ranges 460-900 kev and 1000-1500 kev.  
Several tens of new lines were observed. A table of transitions in Yb<sup>169</sup> occurring  
in the decay of Lu<sup>169</sup> is compiled on the basis of these measurements and the data  
of other authors and covers transition energies from 24 kev to 2300 kev. The tran-  
sition energies are given together with the mean-square error, and also the inten-  
sities of K-conversion electrons, data on the intensities of  $\gamma$ -transitions, calcu-  
lated conversion coefficients, and the multipolarity. A decay scheme for Lu<sup>169</sup> is  
given based on all the available data on Yb<sup>169</sup> levels.

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USSR

DZHELEPOV, F. S., MOZZHUKHIN, A. V., POPOVA, T. I., and PRIKHODTSEVA, V. P.

"Ge<sup>66</sup> Decay"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 34, No. 1, Jan 70, pp 29-41

Abstract: The  $\gamma$ -spectrum of Ge<sup>66</sup> was measured with a Ge(Li) detector with sensing volumes of 5 and 9 cm<sup>3</sup> and a 4096-channel analyzer. All lines observed by Ricci, et al were observed except the  $\gamma$ -line 405 kev. In all, 44 lines were observed, of which 26 were definitely established as belonging to Ge<sup>66</sup>. The intensities of Ge<sup>66</sup>  $\gamma$ -rays were determined on the basis of the ratio of the intensities  $\gamma$  381 (Ge<sup>66</sup>)/ $\gamma$  1039 (Ge<sup>66</sup>) as measured in given time intervals and the known intensity of  $\gamma$ 1039 in % decays. A level diagram was constructed for Ga<sup>66</sup>. The quantum characteristics of Ga<sup>66</sup> levels are discussed.

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1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--EXCITATION OF LEVELS OF 633 AND 718 KEV IN THULIUM-169 DURING THE  
DECAY OF YTTERBIUM-169 --U-  
AUTHOR--(04)--ALEKSANDROV, V.S., BALALAYEV, V.A., DZHELEPOV, B.S.,  
TERNERSESYANTS, V.YE.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 42-53  
DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR ENERGY LEVEL, EXCITED NUCLEUS, THULIUM ISOTOPE,  
YTTERBIUM ISOTOPE, GAMMA SPECTRUM, GAMMA TRANSITION, BETA DECAY,  
RADIOACTIVE DECAY SCHEME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/0277

STEP NO--UR/0048/70/034/001/0042/0053

CIRC ACCESSION NO--AP0105351

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2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105351

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAMMA SPECTRUM AND CONVERSION E OF PRIME169 YB WERE STUDIED IN THE RANGE OF SPECTRA WHERE GAMMA TRANSITIONS OF THE K PRIMEPI EQUALS 3-2 PLUS WERE EXPECTED. ELECTROLYTICALLY DEPOSITED TA WAS IRRADIATED WITH 660-MEV RHO, AND PRIME169 YB WAS SEPD. BY CHROMATOG. FROM THE TARGET LU FRACTION. INTENSITIES OF 9 NEW CONVERSION LINES WERE MEASURED AND TABULATED. OF THESE, THE 370.86-KEV LINE WERE M2, AND 494.15, 514.89, 579.41, 600.2, AND 624.58 WERE M1. THESE WERE INCLUDED IN THE REVISED DECAY SCHEME OF PRIME169 YB. THE NATURE OF THE 571.0-KEV (3-2 PLUS) LEVEL IS DISCUSSED. IT IS 3-2 PLUS (411) YIELDS UP ALTHOUGH IT IS OF MIXED NATURE, THE WAVEFUNCTION CONTG. BOTH UNIPARTICLE AND COLLECTIVE COMPONENTS. THE 571.0-, 633.03-, 718.3-, AND 825.2-KEV LEVELS OF PRIME169 TB WERE FILLED BY BETA NEGATIVE PROCESSES WITH RELATIVE ABUNDANCES OF LESS THAN 1 TIMES 10 PRIME NEGATIVE 3, 1.1 TIMES 10 PRIME NEGATIVE 2, 3.6 TIMES 10 PRIME NEGATIVE 3, AND LESS THAN 6 TIMES 10 PRIME NEGATIVE 4PERCENT, RESP. THE TOTAL DISINTEGRATION ENERGY OF PRIME169 YB WAS ESTD. TO BE 1100 PLUS OR MINUS 200 KEV. FACILITY: VSES. NAUCH.-ISSLED. INST. METROL. IM. MENDELEEVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DECAY OF LUTETIUM-169 -U-

AUTHOR--(05)-BALALAYEV, V.A., DZHELEPOV, B.S., MEDVEDEV, A.I.,  
TERNERSESYANTS, V.YE., UCHEVATKIN, I.F.  
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 2-11

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--LUTETIUM ISOTOPE, RADIOACTIVE DECAY SCHEME, CONVERSION  
ELECTRON SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0230

STEP NO--UR/0048/70/034/001/0002/0011

CIRC ACCESSION NO--AP0105306

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105306

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRUM OF CONVERSION E FROM PRIME169 LU WAS MEASURED OVER THE 400-900 AND 1000-500 DEV RANGES. THE LU FRACTION WAS OBTAINED BY CHROMATOGRAPHIC SEPN. FROM A TA TARGET IRRADIATED WITH 660-MEV RHO. MANY NEW TRANSITIONS WERE OBSERVED, AND OTHERS WERE REFINED, ALSO IN OTHER ENERGY RANGES. IN TOTAL, 156 TRANSITIONS WERE TABULATED WITH ENERGIES RANGING FROM 24.2 TO 2296.9 KEV TOGETHER WITH INTENSITIES OF CONVERSION K E. A COMPLETE DECAY SCHEME OF PRIME169 LU IS PRESENTED. FACILITY: VSES. NAUCH.-ISSLED. INST. METROL. IM. MENDELEEVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DECAY OF GERMANIUM 66 -U-  
AUTHOR--(04)-DZHELEPOV, B.S., MOZZHUKHIN, A.V., POPOVA, T.I., PRIKHODTSEVA,  
V.P.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 29-41  
DATE PUBLISHED-----70  
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--RADIOACTIVE DECAY SCHEME, GERMANIUM ISOTOPE, GAMMA SPECTRUM,  
GAMMA SPECTROMETER, FORBIDDEN TRANSITION, BETA RADIATION, IRON ISOTOPE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0229 STEP NO--UR/0048/70/034/001/0029/0041  
CIRC ACCESSION NO--AP0105305  
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AP0105305  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GAMMA SPECTRUM OF GE  
IRRADIATED BY P AND PURIFIED BY THE DISTN. OF GECL SUB4 WAS MEASURED BY  
GE(LI) DETECTORS AND A 4096 CHANNEL ANALYZER. SINCE INTENSE GAMMA RAYS  
FROM PRIME69 GA, PRIME75 GA, AND PRIME67 GA, AND HIGH COMPTON BACKGROUND  
INTERFERED WITH IDENTIFICATION OF WEAK GAMMA LINES OF PRIME66 GA, THE  
PRIME56 FE(PRIME12 C, 2N) PRIME66 GE REACTION WAS ALSO USED. IN TOTAL,  
44 GAMMA LINES WERE OBSERVED OVER THE 40-2000 KEV RANGE. THE PRIME66  
GE DECAY SCHEME IS PRESENTED. QUANTUM CHARACTERISTICS OF THE PRIME66 GA  
LEVELS ARE DISCUSSED AS WELL AS THE PRIME66 GE(0 PLUS) YIELDS PRIME66  
GA(0 PLUS) BETA TRANSITION. ALTHOUGH THE LATTER IS FORBIDDEN ACCORDING  
TO ISOBARIC SPIN, A RELATIVELY LOW LOG FT (5.7) WAS FOUND.

UNCLASSIFIED

USSR

D  
DZHELEPOV, B. S., et al

"Gamma Radiation of  $^{66}\text{Ge}$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya,  
August 1970, pp 1666-1669

Abstract: The gamma radiation spectrum of  $^{66}\text{Ge}$  was measured on a Ge(Li) detector with a sensitive volume of 30 cm<sup>3</sup> and a 4096-channel analyzer. Special attention was paid to hard gamma rays of  $^{66}\text{Ge}$ . In the energy region above 500 kev 20 lines were observed, belonging, undoubtedly, to  $^{66}\text{Ge}$ . Two new levels of  $^{66}\text{Ge}$  with energies of 1456 and 1556 kev were found.

A table shows the energies and intensities of gamma rays of  $^{66}\text{Ge}$  in the region above 270 kev. A figure shows portions of the spectrum (above 500 kev) in which gamma rays of  $^{66}\text{Ge}$  were noted.

There are 5 references.

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D  
USSR

DZHELEPOV, B. S., et al (Khlopin Radium Institute)

"Spectrum of Internal Conversion Electrons of  $^{69}\text{Ge}$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya,  
August 1970, pp 1610-1613

Abstract: The spectra of the conversion electrons of the 6 most intensive transitions of  $^{69}\text{Ga}$ : 318, 574, 872, 1106, 1207, and 1336 keV were studied on a double toroidal beta-ray spectrometer operating in the mode for measuring single spectra. The conversion coefficients  $\alpha_c$  were determined and conclusions concerning the multipolarities of these transitions were drawn.

The article includes two figures and one table. Figure 1 is a schematic cross section of the beta-ray spectrometer in the plane of the pole plates; Figure 2 gives the curve for the spectrum of the internal conversion electrons of  $^{69}\text{Ge}$ . The table lists data used in determining the multipolarities of transitions in  $^{69}\text{Ga}$  with respect to the quantity  $\alpha_c$ .

There are 12 references.

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USSR

UDC[539.125/.128.004+577.391](023)

GOL'DIN, L.L., DZheLEPOV, V.P., LOMANOV, M.F., SAVChENKO, O.V., and KhOROSHKOV, V.S.

"The Use of High-Energy, Heavy Charged Particles in Medicine"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 110, No 1, May 73, pp 77 - 99

Abstract: Present methods of radiation treatment involve primarily the use of X-rays, gamma radiation, and light particles such as electrons. These techniques are severely limited by the necessity of restricting radiation damage to non-cancerous tissues and the difficulty of controlling the depth of penetration of such radiation. The development of more powerful accelerators makes possible the use of heavy charged particles at high energies. The penetration of these particles through various materials can be much more closely controlled, making it possible to confine the damaging effects to the malignant tissues with much greater accuracy. This effect is further strengthened by the relatively low scattering of heavier particles. For all radiation therapy except intercranial surgery and a few other special cases, a beam of Pi-mesons appears to offer the best characteristics.

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USSR

GOL'DIN, L. L., et al., Uspekhi Fizicheskikh Nauk, Vol 110, No 1, May 73, pp 77-99

The article discusses the uses of radiation therapy, both alone and in combination with surgery, describes the effects of various types of radiation on the human body, and discusses possible future developments. Several radiation therapy installations are described, and there is a survey of experiments in various countries. The authors believe that large-scale centers for high energy and heavy-particle radiation therapy should be established now and that the development of suitable Pi-meson radiation apparatus should be carried out.

Four tables, 15 illustrations, 48 bibliographic citations (mostly from western sources).

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USSR

BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., DZHELEPOV, V. P.,  
KLADNITSKIY, V. S., KUTSIDI, N. K., Tbilisi State University, LOMAKIN, YU. F.,  
MAKSIMENKO, V. A., MARTINSKA, G., FLYAGIN, V. B., KHARZHEYEV, YU. N., and  
SHANDOR, L.

"Possible Existence of  $\pi^- \delta^-$ -Resonance With a Mass of 270 MeV"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13,  
No 12, 20 Jun 71, pp 665-668

Abstract: The preliminary results of this experiment were presented in 1970 at the Fifteenth International Conference on High-Energy Physics in Kiev. The authors find experimental signs of the possible existence of a new meson resonance. They observe a narrow peak when  $M = 270$  MeV in the spectrum of effective masses of the system  $\pi^- \delta^-$ , which forms in the reaction  $\pi^- p \rightarrow \pi^- p + (2.3)\delta^-$  at 5 GeV/c. The authors study events of the type  $\pi^- p \rightarrow \pi^- p + (2.3)\delta^-$  which satisfy the following conditions: (1) the protons are identified by ionization and stopping in the camera, and the impulses of the protons do not exceed 900 MeV/c; (2) the length of the tracks of secondary charged particles from the star is no less than 2 cm, and the impulses of these particles are measured with an

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USSR

BUDAGOV, YU. A., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 12, 20 Jun 71, pp 665-668

accuracy no worse than 30%; (3) the  $\delta^0$ -quanta have impulses greater than 30 MeV/c, measured with an accuracy no worse than 25%; (4) the scattering angles between the two  $\delta^0$ -quanta do not exceed  $2^\circ$ . As a result of the experiment, the authors find that the effect which they observed is caused by the existence of a new meson resonance. The figures depict the distribution by effective mass of quanta. The article contains 2 figures and a bibliography of 7 entries.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PRODUCTION OF XI HYPERSONS IN TAU P INTERACTIONS AT 5.1 GEV-C -U-

AUTHOR--(05)-BUDAGOV, YU.A., VINOGRADOV, V.B., VLODKO, A.G., DZHELEPOV,  
V.P., DUSHENKO, V.F.  
COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, P. 28-31 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HYPERON, CASCADE, PROPANE BUBBLE CHAMBER, PARTICLE PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1795

STEP NO--US/0000/70/011/001/0028/0031

CIRC ACCESSION NO--AP0133700

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPORTS THE OBSERVATION OF THE  
DECAYS OF THE CASCADE HYPERON XI YIELDS ALPHA PLUS PI PRIME NEGATIVE AND  
A DETERMINATION OF ITS PRODUCTION CROSS SECTION IN PI P INTERACTIONS AT  
5.1 GEV-C IN A METER PROPANE BUBLE CHAMBER.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--STUDY OF THE MASS SPECTRUM OF THE LAMBDA K SYSTEM IN PI PRIME  
NEGATIVE P INTERACTIONS AT 4 AND 5.1 GEV-C -U-  
AUTHOR--(05)-BUDAGOV, YU.A., VINOGRADOV, V.B., VOLODKO, A.G., DZHELEPOV,  
V.P., KIRILLOVUGRYUMOV, V.G.  
COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P.31-5 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROPANE BUBBLE CHAMBER, SYNCHROTRON, PROTON, MASS SPECTRUM,  
PION PION INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/1778

STEP NO--US/0000/70/011/001/0031/0035

CIRC ACCESSION NO--AP0133683

UNCLASSIFIED



2/2 014 1126  
CIRC ACCESSION NO--AP0133683

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPORTS THE RESULTS OF THE STUDY OF THE EFFECTIVE MASS SPECTRUM OF THE LAMBDA K SYSTEM, OBTAINED IN AN INVESTIGATION OF PI PRIME NEGATIVE PI INTERACTIONS IN THE 24 LITER AND THE METER PROPANE BUBBLE CHAMBERS IRRADIATED BY 4 AND 5.1 GEV-C PION BEAMS, RESPECTIVELY, FROM THE JINR PROTON SYNCHROTRON. (10 REFS.).

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--PRODUCTION OF XI PRIME NEGATIVE HYPERONS IN PI PRIME NEGATIVE P  
INTERACTIONS AT 5.1 GEV-C -U-  
AUTHOR--(05)-BUDAGOV, YU.A., VINOGRADOV, V.B., VOLODKO, A.G., DZHELEPOV,  
V.P., DUSHENKO, V.F.  
COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(1), 28-31

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--HYPERON, PION PROTON INTERACTION, RADIOACTIVE DECAY, PARTICLE  
PRODUCTION, PARTICLE CROSS SECTION, BUBBLE CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0678

STEP NO--UR/0386/70/011/001/0028/0031

CIRC ACCESSION NO--AP0105654

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANAL. OF 230,000 PHOTOGRAPHS TAKEN IN A C SUB3 H SUB8 BUBBLE CHAMBER OF PI PRIME NEGATIVE P INTERACTIONS AT 5.1 GEV-C SHOWED 28 NUCLEAR EVENTS WHOSE SECONDARY NEG. TRACKS COMING OUT THE INTERACTION STARS HAD THE CHARACTER OF THE XI PRIME NEGATIVE YIELDS 0 PLUS PI PRIME NEGATIVE DECAY. ONLY 6 OF THEM SATISFIED THE CRITERION FOR A XI HYPERON DECAY, I. E., IONIZATION OF EACH TRACK NOT CONTRADICTING THE XI DECAY HYPOTHESIS AND EFFECTIVE MASS (0 PLUS PI PRIME NEGATIVE) NOT DIFFERING FROM M EQUALS 1321 MEV-C PRIME2 MORE THAN 50 MEV-C PRIME2. ALL 6 EVENTS IN THE NUCLEAR STAR WERE UNEQUIVOCALLY IDENTIFIED AS THE FOLLOWING: (SHOWN ON MICROFICHE). THE TOTAL CROSS SECTION FOR XI PRIME NEGATIVE HYPERON PRODUCTION IN THE PI PRIME NEGATIVE-P INTERACTION WAS (2.9 NEGATIVE SUB1.0 POSITIVE PRIME1.8)MU B. THE CROSS SECTION INCREASED ON INCREASING THE INTERACTION ENERGY. FACILITY: GB'EDIN, INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

Instruments and Equipment

USSR

UDC 615.849-72

DZHELEPOV, V. P. and GOL'DIN, L. L., Joint Institute for Nuclear Research and  
Institute of Theoretical and Experimental Physics

"Use of Existing Heavy Particle Accelerators for Radiation Therapy and the Possi-  
bilities of Designing New Ones"

Moscow, Meditsinskaya Radiologiya, No 5, 1970, pp 19-28

Abstract: The physical characteristics of beams of heavy particles (protons, alpha-particles, heavy ions, pi-mesons), and their relative merits and effectiveness from the standpoint of radiation treatment of deep-seated pathological foci are discussed. Proton beams obtained from heavy-particle accelerators in the USA, Sweden and USSR are described. The project for the reconstruction of the synchro-cyclotron at the Laboratory of Nuclear Problems, Dubna, in order to improve the characteristics of the medical beam, is discussed as well as the possibilities of designing specialized proton accelerators for medical purposes.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--THE USE OF EXISTING AND THE POSSIBILITY OF DESIGNING NEW SOVIET  
ACCELERATORS OF HEAVY PARTICLES FOR RADIUM TREATMENT -U-  
AUTHOR--(02)-DZHELEPOV, V.P., GOLDIN, L.L.  
COUNTRY OF INFO--USSR D.  
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 19-28  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ALPHA PARTICLE, PROTON, MESON, PARTICLE ACCELERATOR,  
RADIATION BIOLOGIC EFFECT, RADIOTHERAPY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/0373 STEP NO--UR/0241/70/015/005/0019/0028  
CIRC ACCESSION NO--AP0121061  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121061

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYSICAL PECULIARITIES OF BEAMS OF HEAVY PARTICLES (PROTONS, ALPHA PARTICLES, HEAVY IONS, PI MINUS MESONS), THEIR RELATIVE MERITS AND EFFECTIVENESS FROM THE VIEWPOINT OF RADIUM TREATMENT OF DEEP SEATED PATHOLOGICAL FOCI ARE DISCUSSED. THE AUTHORS DESCRIBE PROTON BEAMS OBTAINED BY MEANS OF ACCELERATOR OF HEAVY PARTICLES IN THE USA, SWEDEN AND USSR, THE PROJECT OF RECONSTRUCTION OF THE SYNCHROCYCLOTRON OF THE LABORATORY OF NUCLEAR PROBLEMS (DUBNA), FOR THE IMPROVEMENT OF THE CHARACTERISTICS OF MEDICAL BEAM, AS WELL AS THE POSSIBILITY OF DESIGNING SPECIALIZED PROTON ACCELERATORS FOR MEDICAL PURPOSES.

FACILITY: OB'YEDINENYY INSTITUT YADERNYKH ISSLEDOVANIY AND INSTITUT TEORETICHESKOY I EKSPERIMENTAL'NOY FIZIKI.

UNCLASSIFIED

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USSR

BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., ~~DZHELEPOV, V. P.~~ KIRILLOV-UGRYUMOV, V. G., Kladnitskiy, V. S., KUZNETSOV, A. A., LOMAKIN, YU. F., MEL'NIKOVA, N. N., PONOSOV, A. K., FLYAGIN, V. B., SHLYAPNIKOV, P. V., MARTINSKA, G. (1), BOLDEA, V. (2), MIKHUL, A. (2), MUMUYANU, D. (2), PONTA, T. (2), FELEA, S. (2), and CHADRAA, B. (3), Joint Institute of Nuclear Research; (1) University imeni P. I. Shafarik, Koshitse, Czechoslovak SSR; (2) Institute of Atomic Physics, Bucharest, Romania; (3) Physics Institute of the Academy of Sciences Mongolian People's Republic, Ulan-Bator

"Study of the Mass Spectrum of a  $\Lambda K$ -System in  $\pi^- p$ -Interactions at 4 and 5.1 GeV/c"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

Abstract: The results of a study of the spectrum of the effective masses of a  $\Lambda K$ -system are reported. The spectrum was obtained in investigating  $\pi^- p$ -interactions in a 24-liter and a 1-meter propane bubble chamber irradiated in  $\pi$ -meson beams of the proton synchrotron of the Joint Institute of Nuclear Research with pulses of 4 and 5.1 GeV/c, respectively. An investigation of the structure of the effective mass spectrum of a  $\Lambda K$ -system was of interest from the viewpoint of observing new

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BUDAGOV, YU. A., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

resonances with zero strangeness and the decays of different isobars via the channel  $N^* \rightarrow \Lambda + K$ , to determine the relative probabilities of these decays. Approximately 230,000 photographs were analyzed for each bubble chamber. The effective mass spectra of  $\Lambda K^0$  combinations for events in which the decays of a  $\Lambda$ -hyperon and a  $K^0$ -meson were simultaneously recorded in the chamber are graphed. The graphs show a considerable excess in the number of events above the background in the mass region 1.61-1.96 GeV/c<sup>2</sup>. It is shown that this anomaly is not associated with the reflection of known resonances  $Y^*$  (1385) and  $K^*$  (890) in the  $\Lambda K^0$ -spectrum. The total excess in the number of events over the background in the mass interval 1.61-1.96 GeV/c<sup>2</sup> was  $114 \pm 13$ . The experimental data verify the existence of two resonances with masses about 1685 and 1935 MeV/c<sup>2</sup> and widths of the order of 150 MeV/c<sup>2</sup>. It is concluded that the anomaly observed in the effective mass spectrum of  $\Lambda K$  can be explained only by the decay of the isobar  $S_{11}$  (1710),  $P_{11}$  (1750) via the channel  $N^* \rightarrow \Lambda + K$  or by the existence of a new resonance with mass about 1685 MeV/c<sup>2</sup>, as the data of R. Erbe et al indicate.

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USSR

UDC 620.178

DZHEMELINSKIY, V. V., KOVAL'CHENKO, M. S., BORISENKO, V. A., and MAKARENKO, G.N.

"Indenters for Measuring the Hardness of Materials at High Temperatures"

V sb. Tugoplavk. karbidy (The Refractory Carbides -- Collection of Works), Kiev, "Nauk. Dumka," 1970, pp 233-236 (from RZh\_metallurgiya, No 3, Mar 71, Abstract No 3I916 by authors)

Translation: The article investigates the possibility of using hot-pressed specimens of boron carbide and titanium diboride as material for an indenter for measuring the hardness of tungsten carbide at high temperatures. It is shown that an indenter made of titanium diboride flattens at  $1770^{\circ}\text{K}$  due to the decline in  $\text{TiB}_2$  hardness at this temperature. An indenter made of boron carbide can be used repeatedly to measure the hardness of tungsten carbide up to  $2170^{\circ}\text{K}$  without traces of chemical interaction between the material of specimen and indenter, and without failure of the latter. Three illustrations. Bibliography with eight titles.

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USSR

UDC 512.25/.26+519.3:330.115

DZHEMILEV, N. I.

"Problem of Solution of Multistage Transport Problem"

Nauch. Zap. Tashkent. In-t. Nar. Kh-va [Scientific Writings of Tashkent Economics Institute], No 34, 1970, pp 95-104, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V675, unsigned).

Translation: A numeration method involving crossing out is used.

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USSR

UDC 537.533.8

ARIFOV, U. A., DZHEMLEV, N. Kh., and RADZHAROV, T. D.

"Anisotropy of Secondary Electron Emission in the Passage of  $L_i^+$  Ions Through Cu Single Crystals

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No. 2, Feb 71, pp 252-254

Abstract: The authors studied secondary ion-electron emission in the passage of Lithium ions in oriented thin films. A vacuum instrument was used for the experiments, supplemented by a goniometric device permitting variation of the angle of incidence of the ion beam  $\theta$  with respect to the normal of the target from  $-30$  to  $+60^\circ$  as well as the creation of azimuthal rotation  $\varphi$  and variation of the angle of detection  $\alpha$ . Thin single-crystal Cu films were the target. "Inversion" of ion-electron emission was found with variation of the angle of beam incidence.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--RADIOSENSITIVITY OF THE CHROMOSOMES OF MONKEY (MACACA MULATTA)  
PERIPHERAL BLOOD LEUCOCYTES AT THE DIFFERENT STAGES OF THE MITOTIC CYCLE  
AUTHOR--DZHEMILEV, Z.A. *D*  
COUNTRY OF INFO--USSR  
SOURCE--GENETIKA; 6: NO. 3, 147-55(MAR 1970)  
DATE PUBLISHED----MAR70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RADIATION SENSITIVITY, CHROMOSOME, MONKEY, LEUKOCYTE, MITOSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0666 STEP NO--UR/0473/70/006/000/0147/0155  
CIRC ACCESSION NO--AP0117891  
UNCLASSIFIED